European Railway Agency

An agency of the European Union

Telematics applications for passengers Vision 2025

ERA and the Digitalisation of Railways
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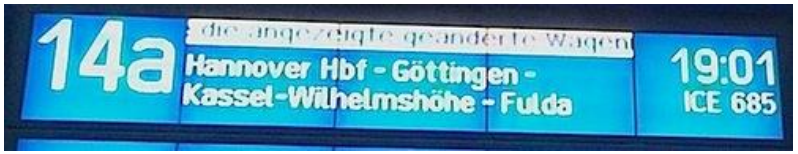
The framework of the TAP strategy – the situation for rail ticketing in EU today

- EU train travellers **still lack train travel information and accessibility to tickets & prices** (especially for cross-border linked foreign domestic connections)
- **Customer expectation:**
  - whole digital distribution chain (as for other transport sectors)
  - info about timetables/products, ticketing, info during trip, handling complaints after trip
- **Expectations not met by rail sector**
- Preconditions benefitting from EU Passenger Rights Regulation not in place
- **Competitors** use **more sophisticated distribution channels**
- What can/must be addressed technically (ERA) in the telematics applications for passengers area **to overcome these problems in a 2025 horizon?**



The political, economical, societal, technological environment

Political

- Increasing **political pressure** on **improved travel info & cross-border/multi-modal journeys** (EU Passengers' Rights Regulation, Intelligent Transport Systems Directive 2010/40/EU,..)
- TAP TSI already existing (but weak implementation)
- Further bad delivery by rail might **divert political focus from rail to more innovative sectors**

Economic

- Competing **other modes of transport provide better customer info and impact rail market**
- CEF funds available for telematics implementation (passengers/freight)

The political, economical, societal, technological environment

Social

- **Ageing population:** requires better accessibility, comfort, information and usability of rail
- **Citizen's "green sense", traffic congestions:** need for integrated transport
- "share information and access to it everywhere, every time" **= standard expectation**

Technological

- **Other sectors absorb technology progress much quicker** (e.g. autonomous cars)
- **Digitalisation as irreversible trend**, heavily impacting traveller's behavior/expectations
- More advanced end user devices available in perspective
- **3rd party applications developers need open data**
- **Revenue protection** of ticket vendors/RUs harmed by **diverging ticket control procedures**

- **Coverage of broadband networks** connecting passengers **in trains still insufficient**

Some benchmarking with other modes of transport

1.1. Benchmarking with other modes of transport

The table illustrates the maturity of the modes for **multi-carrier information/distribution** of their products, not for information/distribution capabilities for a single carrier only.

Aspect	Rail	Road	Air
Availability and quality of timetable data	★★★☆☆	★☆☆☆☆	★★★★★
	Rail timetable data less quality controlled and less frequently updated than in Air		
Availability of data on domestic fares	★★☆☆☆	★☆☆☆☆	★★★★★
	Rail domestic fare data partially available compared to Air		
Availability of data on international fares	★★☆☆☆	★☆☆☆☆	★★★★★
	Rail international fare data available only to insiders compared to Air		
Ticket fulfilment international	★★☆☆☆	★★★★☆	★★★★★
	Rail international tickets less available and reliably controllable than Road or Air		
Availability of information on connections with other modes of transport to the passengers	★★★☆☆	★☆☆☆☆	★★☆☆☆
	Rail informs about these connections better than Road or Air.		
Availability of information on delays to the passengers	★☆☆☆☆	★☆☆☆☆	★★★★★
	Rail is rather blackbox compared to flight tracking applications from Air		
Overall rank (averages)	★★☆☆☆	★½☆☆☆	★★★★½

SWOT: weaknesses

General

- lack of TAP TSI implementation in the sector
- weak monitoring of implementation
- TAP TSI touches commercial-sensitive issues, need of EU legislation is not clearly communicated

Before the trip - timetable + tariff information

- Update lifecycles for timetable and tariff data too long
- national tariffs often available on national level only
- Cheapest fare not visible
- 3rd party cannot develop travel applications (no open data)
- no fair and transparent display of products from all RUs

Before the trip - Booking/ticketing

- Fragmented landscape for booking systems, ticketing formats, clearing of payments,...
- rail invisible for users of booking systems (no open data)
- only commonly accepted standard are paper based tickets, printed on specific security paper at the station
- Cheapest / fastest not visible on internet
- Harmonized ticket control system also for e-ticket missing

During/after the trip - Journey information

- No harmonized data structure, data generation and data integration processes and interface about journey changes (platform, train run etc.)
- Fragmented information source for passenger information (no standardized info exchange)
- 3rd party cannot develop travel applications (no open data)

- No uninterrupted passenger information from info system to the passenger available (network coverage)

SWOT: opportunities, threats

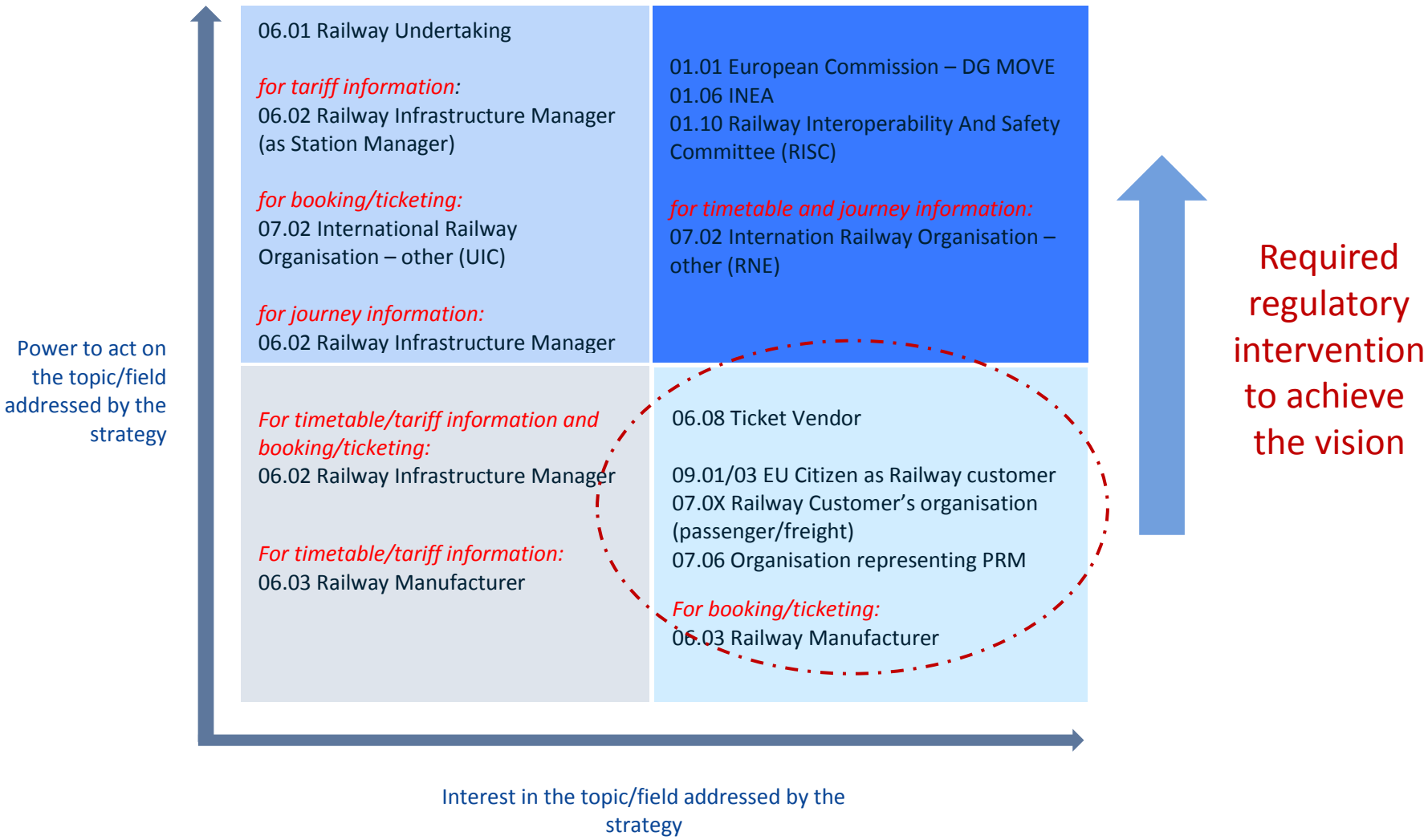
Opportunities

- Ticket vendors, citizens, public bodies **push for open data and harmonized (rail) e-tickets**
- Timetable data mostly coming from public services **- "already subsidised" by EU taxpayer**
- ITS Directive 2010/40/EC requires provision of EU-wide multimodal travel information
- Common shared TAF/TAP IT-system for train running information is to be implemented
- **Most barriers/weaknesses can be unblocked by some further technical requirements in TAP TSI**
- Further evolution of smart digital devices

Threats

- RUs trying to impose on user **individual distribution constraints (e g channels, ticket formats)**
- Delayed TAP implementation, building of parallel similar systems not following proposed standards
- Low cost airline and bus competitors have established convenient travel search and booking tools
- Further evolution of smart digital devices favours also other modes of transport

Identification of relevant stakeholders – we think regulatory intervention for rail is necessary



Overall diagnosis

- Political/customer **expectations not yet sufficiently met by rail**
- The solutions are existing but there is **resistance to implement them (market opening?)**
- **to overcome weaknesses + seize opportunities**: develop today's TAP TSI further **(mainly: standard protocols, open data).** TAP builds on existing rail standards!
- Extension to other modes of transport necessary (in ITS Directive)
- Enhanced monitoring of TAP TSI implementation necessary
- *No legal basis to impose measures for non-compliance*
- Improvement of broadband network coverage and bandwidth along railway lines to be discussed with the players

2025 EU rail passengers…

- Can experience (multi-modal) ticket info, booking, use better/equal to other modes
- Can fully benefit from EU Passenger Rights Reg, EU Digital Agenda and more business opportunities in and around rail
- Can plan trips and access tariff information for all available trains and public transport systems, facilitated by booking platforms
- Can book the whole trip (supported by booking system)
- Can benefit of fair/transparent display of the available options
- Are properly informed about all events during the trip
- Experience an easy filing and handling of potential complaints

RUs and Ticket Vendors can protect their revenues from cross-border travel

RUs and IMs can better forecast arrival times and build robust timetables

Rail is customer's favourite choice regarding information provision and ease of access

The TAP 2025 strategy objectives

Code	Specific objective	Outcome indicators
SO 1	Ensure that passengers, third parties and other modes of transport can access all up-to-date pre-trip info (timetable and tariff data) and can buy valid tickets (easily) EU-wide	% of available open data for timetable and tariffs compared to the full dataset Number of rail data brokers with almost complete coverage (x%, to define) of the European rail network % of tickets available with security elements for an efficient and safe ticket control mechanism % reduction of distribution costs (tbd further)
SO 2	Ensure the exchange of timetable and tariff information with the other modes of transport	*Indicator to be defined*
SO 3	Safeguard RU's revenues from multi-carrier/issuer e-tickets	% reduction of ticket fraud with electronic tickets?
SO 4	Ensure that passengers, third parties, RUs and neighbouring IMs and other modes of transport can access all during-the-trip rail data (as deviation from plan, service disruption, train running forecasts,…)	% of available open data for train running, deviation from plan and service disruption compared to the full dataset % of passengers having uninterrupted travel info experience % increase in passenger satisfaction related to information on delays and disruption of train services
SO 5	Facilitate passenger complaints after the trip according to passenger rights regulation by access to at least 12 months historical data Ensure that RUs/IMs can better forecast ETA and that RUs/IMs/POSs can build more robust timetables	% of train data (relevant for pass. rights regs) available after at least 12 months % increase of pass. satisfaction related to handling of complaints % decrease of effort (manpower, processing time) for handling passenger complaints

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4. The potential actions and strategic options

Specific objective	Actions
SO 1 Ensure that passengers, third parties and other modes of transport can access all up-to-date pre-trip info (timetable and tariff data) and can buy valid tickets (easily) EU-wide	1.1 Monitoring of TAP implementation with NCP's and rail sector (existing TAP)
	1.2 Define timetable and tariff information as open data in TAP TSI
	1.3 Closing TAP TSI open points: - Allow the international fulfilment as "mobile ticket", "ticket-on departure" and "manifest on list" - Ensure the possibility to exchange tariff data for domestic tariffs between railway undertakings - set up a common framework for the indirect fulfilment including the security elements
	1.4 Draft legislation for European Rail Code of Conduct (fair and transparent display of products from all railway undertakings in the distribution systems)
	1.5 review TAP legislation for conformity assessment of IT tools developed for the TAP implementation (long term)
	1.6 Monitoring of the emerging of Rail data information brokers and Rail Meta Search Engines in the market
	1.7 depending on the result of the information broker monitoring: Setup an EU Rail Data Cloud to store all passenger information related data (patricyo.eu ☺)

4. The potential actions and strategic options

SO 2 Ensure the exchange of timetable and tariff information with the other modes of transport	2.1 Implement data provision similar to TAP TSI (based on reciprocity principle) in ITS Directive
SO 3 Safeguard RU's revenues from multi-carrier/issuer e-tickets	3.1 Closing TAP TSI open points: set up a common framework for the indirect fulfilment including the security elements
	1.5 review TAP legislation for conformity assessment of IT tools developed for the TAP implementation (long term)
SO 4 Ensure that passengers, third parties, RUs and neighbouring IMs and other modes of transport can access all during-the-trip rail data (as deviation from plan, service disruption, train running forecasts,…)	1.1 Monitoring of TAP implementation with NCP's and rail sector (existing TAP)
	4.1 Monitoring of degree/quality/availability of during-the-trip passenger information (existing and future)
	4.2 revise TAP TSI chapter 4 to include the interoperable messages for the information of the passengers in the station area and on board of a vehicle
	1.5 review TAP legislation for conformity assessment of IT tools developed for the TAP implementation (long term)
	4.3 Improve the network coverage and bandwith for broadband communication along the railway lines
	4.4 depending on the result of the "during-the-trip passenger info av.bility" monitoring: Setup an EU Rail Data Cloud to store all passenger information related data (patricyo.eu ☺)

4. The potential actions and strategic options

SO 5 Facilitate passenger complaints after the trip according to passenger rights regulation EC 1371/2007 by access to at least 12 months historical data *and* Ensure that RUs/IMs can better forecast ETA and that RUs/IMs/POSs can build more robust timetables	1.1 Monitoring of TAP implementation with NCP's and rail sector (existing TAP)
	5.1 revise TAP TSI chapter 4 to include "TrainRunningMessages"
	1.5 review TAP legislation for conformity assessment of IT tools developed for the TAP implementation (long term)
	5.4 Monitoring of 12 months availability of trip data
	4.4 depending on the result of the 12 months availability monitoring: Setup an EU Rail Data Cloud to store all passenger information related data (patricyo.eu ☺)